

**REMARKS**

The present application was filed on November 26, 2003 with claims 1 through 20. Claims 1 through 20 are presently pending in the above-identified patent application. Claim 20 is proposed to be amended herein.

5 In the Office Action, the Examiner rejected claims 1-20 under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter, and rejected claims 1-20 under 35 U.S.C. §102(b) as being anticipated by Wang et al. ("Clustering by Pattern Similarity in Large Data Sets," ACM SIGMOD 2002 June 4-6, Madison, Wisconsin, USA).

10 Section 101 Rejections

Claims 1-20 were rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. Regarding claims 1, 18, and 20, the Examiner asserts that the program/algorithm merely manipulates data or an abstract idea, or merely solves a mathematical problem without a limitation to a practical application.

15 The Examiner further asserts that the scope of the presently claimed "machine readable medium containing one or more programs" can range from paper on which the program is written, to a program simply contemplated and memorized by a person. Regarding claim 19, the Examiner asserts that the claim does not impart functionality to a computer or computing device, and is thus considered nonfunctional descriptive material that is  
20 non-statutory.

The Supreme Court has stated that the "[t]ransformation and reduction of an article 'to a different state or thing' is the clue to patentability of a process claim." *Gottshalk v. Benson*, 409 U.S. 63, 70, 175 U.S.P.Q. (BNA) 676 (1972). In other words, claims that require some kind of transformation of subject matter, which has been held to  
25 include intangible subject matter, such as data or signals, that are representative of or constitute physical activity or objects have been held to comply with Section 101. See, for example, *In re Warmerdam*, 31 U.S.P.Q.2d (BNA) 1754, 1759 n.5 (Fed. Cir. 1994) or *In re Schrader*, 22 F.3d 290, 295, 30 U.S.P.Q.2d (BNA) 1455, 1459 n.12 (Fed. Cir. 1994).

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Thus, as expressly set forth in each of the independent claims, the claimed methods, apparatus, or articles of manufacture find near-neighbors in a set of objects and transform the set of objects to derive subspace pattern similarities and subspace correlations for use in identifying near neighbor objects. This transformation to subspace pattern similarities and subspace correlations for use in identifying near neighbor objects provides a useful, concrete and tangible result.

Regarding claim 19, Applicants note that the processor and memory are operative to identify subspace pattern similarities and define subspace correlations. Thus, claim 19 recites functional descriptive material that has a functional interrelationship with a computer

Please note that claim 20 has been amended in accordance with the Examiner's suggestion

Applicants submit that each of claims 1-20 are in full compliance with 35 U.S.C. §101, and accordingly, respectfully request that the rejection under 35 U.S.C. §101 be withdrawn

#### Independent Claims 1 and 18-20

Independent claims 1 and 18-20 were rejected under 35 U.S.C. §102(b) as being anticipated by Wang et al. Regarding claim 1, the Examiner asserts that Wang teaches identifying subspace pattern similarities that the objects in the set exhibit in multi-dimensional spaces (section 1.3); and defining subspace correlations between two or more of the objects in the set based on the identified subspace pattern similarities for use in identifying near-neighbor objects. The Examiner asserts that Wang discloses clustering by pattern similarity

As the Examiner acknowledges, Wang is directed to clustering by pattern similarity. (See, Abstract.) While the processes of "clustering" and "finding the nearest neighbor" share the concept of pattern similarity, the results of the processes are *not* the same, as would be apparent to a person of ordinary skill in the art. For example, in "clustering," a given set of datasets are processed and grouped into clusters. Once the clustering is completed, however, the nearest neighbor of a given data item is still not known. Thus, "clustering" and the Wang reference do *not* disclose or suggest defining

*subspace correlations* between two or more of the objects in the set based on the identified subspace pattern similarities for use in identifying *near-neighbor* objects. Independent claims 1, 19, and 20 require *identifying subspace pattern similarities* that the objects in the set exhibit in multi-dimensional spaces, and *defining subspace correlations* between two or more of the objects in the set based on the identified subspace pattern similarities for use in identifying *near-neighbor* objects. Independent claim 18 requires *defining subspace correlations* between two or more of the objects in the set based on the identified subspace pattern similarities, and using the subspace correlations to identify *near-neighbor* objects among the query objects and the objects in the set.

Thus, Wang et al do not disclose or suggest identifying subspace pattern similarities that the objects in the set exhibit in multi-dimensional spaces; and defining subspace correlations between two or more of the objects in the set based on the identified subspace pattern similarities for use in identifying near-neighbor objects, as required by independent claims 1, 19, and 20, and do not disclose or suggest creating a pattern distance index to identify subspace pattern similarities that the objects in the set exhibit in multi-dimensional spaces; defining subspace correlations between two or more of the objects in the set based on the identified subspace pattern similarities; and using the subspace correlations to identify near-neighbor objects among the query objects and the objects in the set, as required by independent claim 18.

#### Dependent Claims 2-17

Dependent claims 2-17 were rejected under 35 U.S.C. §102(b) as being anticipated by Wang et al.

Claims 2-17 are dependent on claim 1 and are therefore patentably distinguished over Wang et al because of their dependency from independent claim 1 for the reasons set forth above, as well as other elements these claims add in combination to their base claim.

All of the pending claims, i e , claims 1-20, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to

contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated

Respectfully submitted,

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